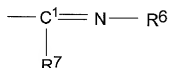


# OLEFIN POLYMERIZATION CATALYSTS, THEIR PRODUCTION AND USE

## ABSTRACT

This invention relates to a catalyst system comprising an activator and one or more heteroatom substituted phenoxide group 3 to 10 transition metal or lanthanide metal compounds wherein the metal is bound to the oxygen of the phenoxide group and provided that:

- a) if more than one heteroatom substituted phenoxide is present it is not bridged to the other heteroatom substituted phenoxide,
- b) if the metal is a group 4 metal then the carbon adjacent to the carbon bound to the oxygen of the phenoxide may not be bound to an aldehyde or an ester,
- c) the carbon ortho to the carbon bound to the oxygen of the phenoxide may not be bound to the C<sup>1</sup> carbon in a group represented by the formula:



wherein R<sup>6</sup> and R<sup>7</sup> are independently hydrogen, halogen, a hydrocarbon group, a heterocyclic compound residue, an oxygen containing group, a nitrogen containing group, a boron containing group, an sulfur containing group, a phosphorus containing group, a silicon containing group, a germanium containing group, or a tin containing group, and R<sup>1</sup> and R<sup>2</sup> may be bonded to each other to form a ring.

The activator may be an aluminum alkyl, an alumoxane, a modified alumoxane, a non-coordinating anion, a borane, a borate or a mixture thereof.